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LXXXVII. *An Account of Mr. Mafon's Paper, concerning the Going of Mr. Ellicott's Clock, at St. Helena; by James Short, M. A. F. R. S.*

Read May 13, 1762. **I**N this paper, Mr. Mafon tells us, that, in order to determine the regularity of the motion of Mr. Ellicott's clock, he resolved to make observations of the occultations of stars, by a ridge of rocks, the altitude of which was about 30° above the place of observation, and at about a quarter of a mile's distance; but that this method was soon improved, by the Rev. Mr. Maskelyne, who proposed to make use of the equal altitude instrument for that purpose, by observing the vanishing of the stars out of the field of the telescope. By observations of this sort, from the 31st of October to the 19th of November 1761, he found, that the clock went very regularly, not varying so much as a second in that time; but from the 19th of November to the 3d of December, he found, that the clock had gone slow, or lost two seconds of time; and this alteration he imputes to the wedges, behind the clock, having got loose, shrunk, as he supposes, by the dryness of the place; he therefore secured the wedges, and found, that, from the 3d of December to the 22d of December, the clock did not vary in its motion above one second of time. On the 5th of January, the clock was stopped; and it appears, that the clock did not vary so much as one second of time from the 9th of January to the 22d of January. The thermometer
was

was hung by the side of the clock, and he never saw it higher than $74\frac{1}{2}$ divisions, nor lower than 67, from the 12th of 1761 to the 18th of January 1762. He has given no description of the clock.

R E M A R K.

The method proposed by Mr. Mason, of making these observations, by means of the occultations of stars behind the ridge of rocks, was certainly better than the other, by means of the *equal altitude instrument*; for it has been found by experience, that any instrument, however securely fixed, is liable to alterations in its direction, owing, perhaps, to the effects of heat and cold, moisture and dryness, in the parts, to which the instrument is fastened; and an *equal altitude instrument* was the most improper for this purpose, because it could not be rectified by looking at a distant mark, to correct any alterations it might have suffered in its position or direction.

Mr. Mason further says, that, by comparing the observations of the going of the clock, made at St. Helena, with those made at the cape of Good Hope, the difference of the effect of gravity at the two places may be found.

R E M A R K.

No observations of the difference in the going of a clock, made at different places, can, with certainty, determine the difference of the effect of gravity at these places; because it has been found, by experience, that the same clock, placed at different times on different walls, in the same room, will make a difference

difference in the going of the clock, even though every part of the clock remains the same.

LXXXVIII. *An Account of the Eclipse of the Moon, on the 8th of May 1762, in the Morning, observed by Mr. Short, in Surrey-Street, London.*

Read May 13, 1762. **D**iameter of the Moon, (in the direction of an angle of 45° with the horizon, the lower end of the diameter being to the west of the center of the Moon) measured with an achromic object-glass micrometer of 40 feet focus, and found to be $= 31' 31''.7$,

	h	'	''
On 7th May, at - - - - -	11	35	0
α Libræ passed the meridian, at - -	11	38	25
Preceding limb of the Moon on the } meridian, at - - - - -	11	49	58
Subsequent ditto, at - - - - -	11	52	$13\frac{1}{2}$
Penumbra, sensible, at - - - - -	13	40	0
Diameter of the Moon measured again, } and found to be $= 31' 26''$, at -	13	50	0
Beginning of the eclipse, through an } achromic opera-glass, at - - -	14	12	30
Shadow very dense upon the Moon's } limb, at - - - - -	14	14	0
So that I conclude the eclipse began at	14	13	0

The times above are apparent times.